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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,583	10/23/2001	Norman C. Chan	499059-A-01-US (Chan)	6512

7590 04/08/2004

Docket Administrator (Room 1L-202)
Avaya Inc.
101 Crawfords Corner Road
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Holmdel, NJ 07733-3030

EXAMINER

UBILES, MARIE C

ART UNIT	PAPER NUMBER
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2642

DATE MAILED: 04/08/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,583

Applicant(s)

CHAN ET AL.

Examiner

Marie C. Ubiles

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it is not within the range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 17-23 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novas et al. (US 5,521,967) in view of Newton (Newton's Telecom Dictionary, 16 Edition).

As for claim 1, Novas et al. discloses a system and method for detecting and discriminating between tone signals and voice on a phone line (i.e. an apparatus for classifying a call to a destination endpoint)(See *Background, Col. 1, lines 17-19*); comprising, a call progress monitor that receives as input telephone audio data or signals indicative of the progress of a telephone call made by an automated device (i.e. a receiver for receiving information from the destination endpoint)(See *Summary of the Invention, Col. 1, lines 42-46 and Detailed Description, Col. 4, lines 20-22*); a diagnose routine for directing host to "try again later" when no ringing is detected (i.e. a first detector for determining a first classification in response to the information received from the destination endpoint)(See *Detailed Description, Col. 22, lines 3-7*), for directing the host to "try again later" or "redial the number" when a busy signal is detected (i.e. a second detector for determining a second classification in response to the information received from the destination endpoint)(See *Detailed Description, Col. 22, lines 7-11*), and for directing the host to "redial", "try again later", or "check the line" when dial tone is detected (i.e. a third detector for determining a third classification in response to the

information received from the destination endpoint)(See *Detailed Description*, Col. 22, lines 11-14).

Newton teaches "...The inference engine is the technology which directs the reasoning process. The inference engine contains the general problem-solving knowledge such as how to interact with the user and how to make the best use of the domain information." (See *Page 430*).

It can be seen that Novas et al. does not directly mentions the use of an inference engine, however Novas et al. system makes use of an algorithm that perform different actions in accordance to a specified situation. An inference engine is a technology that directs the reasoning process and contains general problem solving skills, it would have been obvious to one of ordinary skill in the art that Novas' et al. system is performing the same actions as those performed by an inference engine. In other words, the reference performs the same function but does not use the same technology.

As for claim 2, Novas et al. discloses, the system and method for directing the host to "redial the number or "check the validity of the number when the presence of a special information signal is detected (i.e. a four detector for determining a four classification in response to the information received from the destination endpoint)(See *Detailed Description*, Col. 22, lines 13-17).

As for claim 3, Novas et al. discloses a system and method for determining dialtone on a line (i.e. tone detector), on Novas' et al. system the tone detector is the

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third detector. The Examiner takes notice that the order in which the detectors are accommodated are not relevant for proper functioning of the system.

Claims 17-23 and 32-33 are rejected for the same reason as claims 1-3.

3. Claims 4-9, 10-13, 24, 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novas et al. (US 5,521,967) in view of Newton (Newton's Telecom Dictionary, 16 Edition) as applied to claims 1-3, 17-23 and 32-33 above, and further in view of Chiba (US 5,675,709).

Novas et al. discloses the system as claimed, except for the second detector being an energy analyzer, the third detector being a zero crossing analyzer, the fourth detector being an automatic speech recognizer, and a recorder for recording the received information and for updating the inference engine.

Chiba teaches "In a sound edit process, for example, the sound edit processor 3 discriminates the segmental sound data of no sound referring to the index data A and enters the edit process, while omitting the processing of the no sound segments. Therefore, the amount of data to be processed for the sound edit process can be reduced remarkably. In the case of a voice recognition process, the voice of only a specific speaker can continuously be recognized by using the index data B of the feature quantities for speaker discrimination. How to extract the feature quantities of the digital sound data will be described. In this instance of the embodiment, the feature

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quantities to be extracted for index data generation are those of no sound segments of the sound data. To extract the feature quantities of the no sound/sound segments, the amplitudes of the energy E of the sound signal for each unit segment L , and the number of zero-crossings of the sound signal are extracted as the feature quantities, in this instance.

a) The following energy equation is calculated.

$$E = (1/L) \cdot \sum_{k=1}^L (x[k])^2 \quad (1)$$

In the above equation, $x[k]$ indicates a data train of the digital sound data, L indicates a fixed segment of the sound data, k indicates the subsegments of the segment L , and $k=1$ to $k=L$. That is, by calculating the equation (1), the energy E is obtained for each subsegment of the fixed segment of the sound data.

b) The number zc of zero-crossings of the sound signal for each subsegment of the fixed segment L is obtained by carrying out the operation process of the following program description.

$zc=0;$

for $i=0$ or $i \leq L$

if $((x[i] \cdot x[i+1]) < 0)$ $zc=zc+1;$ (2)

c) The energy E and the number zc of zero-crossings of the sound signal, thus obtained, are threshold processed. Through the threshold process, the subsegments where the energy E is small, the number zc of zero-crossings is small, and the duration t is relatively long, are discriminated and extracted as the feature quantities representing no sound segments. In this way, index data of the feature

quantities of the sound data is formed. " (See *Detailed Description*, Col. 7, lines 60-67 and Col. 8, lines 1-32).

Chiba further teaches "If required, the sound data storing portion may be arranged so as to independently manage the digital sound data stored therein. To realize this, a sound data storing portion 70 includes a data storing portion 71 and an index interpreter 72 for data management. The index interpreter 72 interprets the contents of the index data and the digital sound data is managed using the result of the index data interpretation. [...] When the digital sound data 80 is input to a voice recognition processor 81, an index interpreter 82 of the voice recognition processor 81 interprets the index data, and discriminates the voice segments of the digital sound data to be recognized. The index interpreter 82 sends segment information describing indicative of the voice segments to a recognition processor 83. In response to the segment information, the recognition processor 83 extracts only the voice data to be recognized from the digital sound data 80, and starts the recognition process, and outputs the result of character data 85." (See *Detailed Description*, Col. 13, lines 23-30 and 51-61).

It can be seen that Chiba teaches a voice recognition system (i.e. automatic speech recognizer) in which energy and zero-crossing analyzing is performed, the sound data is stored and later interpreted (i.e. the second detector being an energy analyzer, the third detector being a zero crossing analyzer, the fourth detector being an automatic speech recognizer, and a recorder for recording the received information and for updating the inference engine). It would have been obvious to one of ordinary skill in

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the art at the time the invention was made, to modify Novas et al. system, as per the teachings of Chiba; and thus provide a call progress analyzer in which digitized sound data signals are processed more efficiently.

In reference to the position of the detector, the Examiner takes official notice that the order in which the detectors are accommodated is not relevant for proper functioning of the system.

Claims 10-13, 24, 28 and 31 are rejected for the same reasons as claims 4-9.

4. Claims 14-16, 25-27 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over unpatentable over Novas et al. (US 5,521,967) in view of Newton (Newton's Telecom Dictionary, 16 Edition), and in view of Chiba (US 5,675,709), as applied to claims 4-9, 10-13, 24, 28 and 31, and further in view of Goldberg et al. (US 6,483,896).

The combination of Novas et al. in view of Chiba teaches the invention as claimed, except for the automatic speech recognition unit determining words and phrases, and the automatic speech recognition unit executing a Hidden Markov Model.

Goldberg et al. teaches "...at least one word choice is generated from the received speech signal. In one embodiment, processor 40 utilizes a Hidden Markov Model to generate one word choice or to generate a list of "N-best choices". A probability for each word choice that that word choice is the correct word choice can also be generated." (*See Detailed Description, Col. 4, lines 34-38*).

It can be seen that Goldberg et al. teaches an automatic speech recognition unit that recognizes some words and compare them –making use of a Hidden Markov Model- to a list of possible choices. It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the combination of Novas et al. in view of Chiba, as per the teachings of Goldberg et al.; and thus provide a speech recognition system in which processes will proceed more quickly and with less disruption to the user.

The Examiner takes official notice that “at least one word choice” can be read into the Applicant’s limitation specifying the recognition of a phrase, it would have been obvious that the generation and recognition of more than one word can be identify as a phrase.

Claims 25-27 and 29-30 are rejected for the same reasons as claims 14-16.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Virupaksha (US 4,912,765) teaches an apparatus for detecting the modulation rate of voice-band data signals.

Druilhe (US 5,659,606) teaches a programmable modular apparatus and method for processing digital signals and detecting telephone tones.

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Naik et al. (US 5,054,083) teaches a voice verification circuit for validating the identity of an unknown person.

McKinley, Jr. et al. (US 6,665,377) teaches a networked voice-activated dialing and call-completion system.

Bielby et al. (US 5,488,652) teaches a method and apparatus for training speech recognition algorithms for directory assistance applications.

Cox et al. (US 6,233,319) teaches a method and system for delivering messages to both live recipients and recording systems.

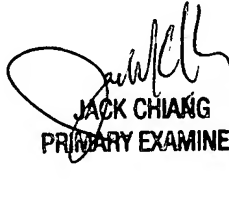
Roybal (US 5,719,932) teaches a signal-recognition arrangement using cadence tables.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marie C. Ubiles whose telephone number is (703) 305-0684. The examiner can normally be reached on 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (703) 305-4731. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Marie C. Ubiles
March 31, 2004.


JACK CHIANG
PRIMARY EXAMINER